

=> fil reg

FILE 'REGISTRY' ENTERED AT 13:35:58 ON 06 AUG 2008  
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STRUCTURE FILE UPDATES: 5 AUG 2008 HIGHEST RN 1038926-51-0  
DICTIONARY FILE UPDATES: 5 AUG 2008 HIGHEST RN 1038926-51-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 9, 2008.

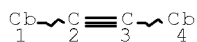
Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> d que stat l6

L4 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
GGCAT IS UNS AT 1  
GGCAT IS UNS AT 4  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

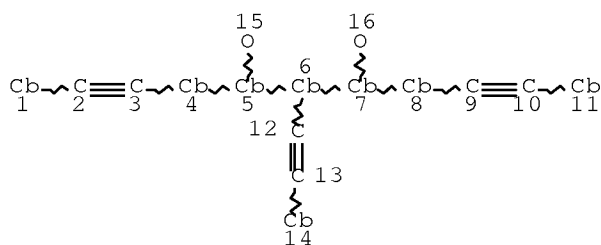
L6 33641 SEA FILE=REGISTRY SSS FUL L4

100.0% PROCESSED 539650 ITERATIONS  
SEARCH TIME: 00.00.04

33641 ANSWERS

=> d que stat l12

L12 STR



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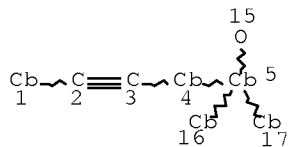
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DEFAULT ECLEVEL IS LIMITED

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August 6, 2008

10/575,992

3

ECOUNT IS E6 C AT 1  
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GRAPH ATTRIBUTES:  
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NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

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E US20070027278/PN

L1 1 S E3  
SEL RN

FILE 'REGISTRY' ENTERED AT 13:05:11 ON 06 AUG 2008

L2 22 S E1-22  
L3 1 S L2 AND C121H80021/MF

FILE 'LREGISTRY' ENTERED AT 13:10:12 ON 06 AUG 2008

L4 STR

FILE 'REGISTRY' ENTERED AT 13:11:13 ON 06 AUG 2008

L5 50 S L4  
L6 33641 S L4 FUL  
L7 3 S L2 AND L6

FILE 'LREGISTRY' ENTERED AT 13:12:23 ON 06 AUG 2008

L8 STR L4

FILE 'REGISTRY' ENTERED AT 13:14:57 ON 06 AUG 2008  
SAV L6 WIN992/A

L9 1 S L8 SSS SAM SUB=L6

FILE 'LREGISTRY' ENTERED AT 13:16:33 ON 06 AUG 2008

L10 STR L8

FILE 'REGISTRY' ENTERED AT 13:17:34 ON 06 AUG 2008

L11 1 S L10 SSS SAM SUB=L6

FILE 'LREGISTRY' ENTERED AT 13:17:51 ON 06 AUG 2008

L12 STR L10

FILE 'REGISTRY' ENTERED AT 13:19:01 ON 06 AUG 2008

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SAV L14 WIN992S1/A

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August 6, 2008

10/575,992

4

L17 77 S L15 SSS FUL SUB=L6  
L18 46 S L17 NOT PMS/CI  
L19 2 S L2 AND L18  
L20 44 S L18 NOT L14  
SAV L18 WIN992S2/A

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L22 17 S L20

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L24 0 S L20

FILE 'STNGUIDE' ENTERED AT 13:33:10 ON 06 AUG 2008

FILE 'HCAPLUS' ENTERED AT 13:34:37 ON 06 AUG 2008

L25 2 S L21 AND L22  
L26 15 S L22 NOT L25

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 13:36:31 ON 06 AUG 2008  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
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FILE COVERS 1907 - 6 Aug 2008 VOL 149 ISS 6  
FILE LAST UPDATED: 5 Aug 2008 (20080805/ED)

HCAPLUS now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2008.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l25 ibib abs hitstr hitind 1-2

L25 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:219870 HCAPLUS Full-text  
DOCUMENT NUMBER: 140:271405  
TITLE: Multifunctional monomers and their use in making crosslinked polymers and porous films  
INVENTOR(S): Niu, Q. Jason; Hefner, Robert E.; Godschalx, James P.; Pechacek, James T.; Arndt, Kim E.  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 54 pp., Cont.-in-part of

August 6, 2008

10/575,992

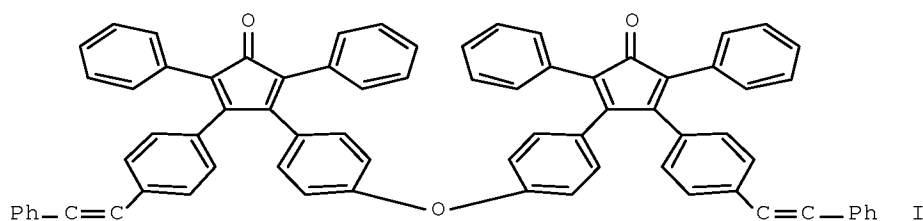
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U.S. Ser. No. 78,205, abandoned.  
CODEN: USXXCO

DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20040053033	A1	20040318	US 2003-365938	20030212
CN 1646463	A	20050727	CN 2003-808460	20030212
PRIORITY APPLN. INFO.:			US 2002-78205	B2 20020215

OTHER SOURCE(S): MARPAT 140:271405  
GI



AB This invention is a monomer comprising at least two dienophile groups and at least two ring structures, of which ring structures are characterized by the presence of two conjugated carbon-to-carbon double bonds and the presence of a leaving group L, wherein L is characterized in that when the ring structure reacts with a dienophile in the presence of heat or other energy sources, L is removed to form an aromatic ring structure. This invention is also curable oligomers and polymers and highly crosslinked polymers made with such monomers. Moreover, this invention is a method of making porous films by combining such monomers or their oligomers with a porogen, curing the polymer and removing the porogen. A typical monomer I was manufactured by chlorination of 4-bromophenylacetic acid, reaction of the resulting acetyl chloride with Ph<sub>2</sub>O, oxidation of the resulting 4,4'-bis[(4-bromophenyl)acetyl] ether with HBr, reaction of the resulting 4,4'-bis[(4-bromophenyl)glyoxalyl] ether with phenylacetylene, and reaction of the resulting 4,4'-bis[[4-(phenylethynyl)phenyl]glyoxalyl] ether with 1,3-diphenylacetone.

IT 582323-72-6P 671780-35-1P 671780-39-5P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(multifunctional aromatic acetylene monomers for manufacture of crosslinked polymers and porous films)

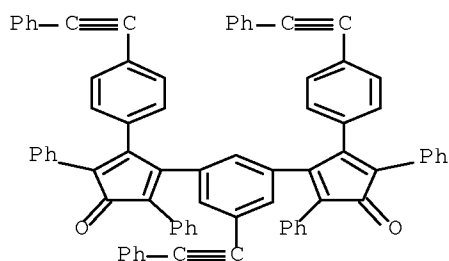
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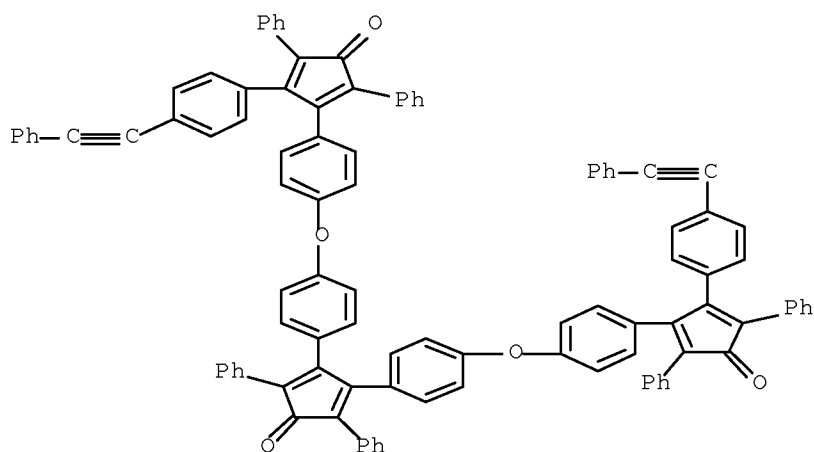
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CMF C76 H46 O2



RN 671780-35-1 HCAPLUS

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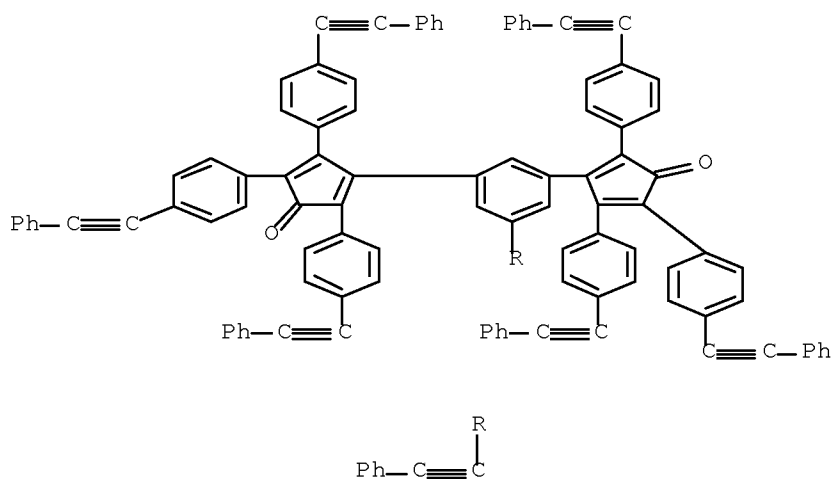
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CRN 582323-55-5

CMF C108 H62 O2



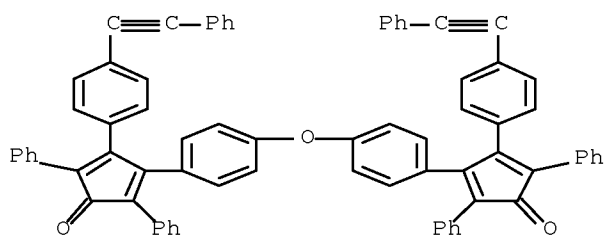
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 671780-29-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)

(multifunctional aromatic acetylene monomers for manufacture of  
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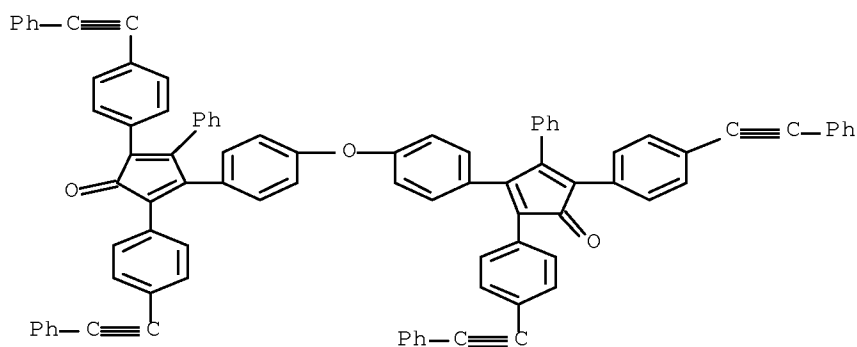
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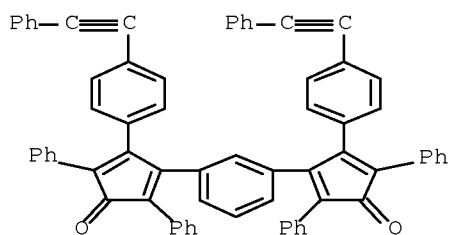
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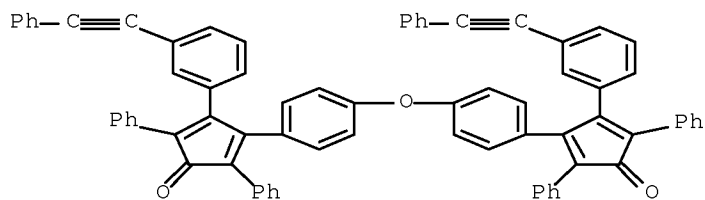
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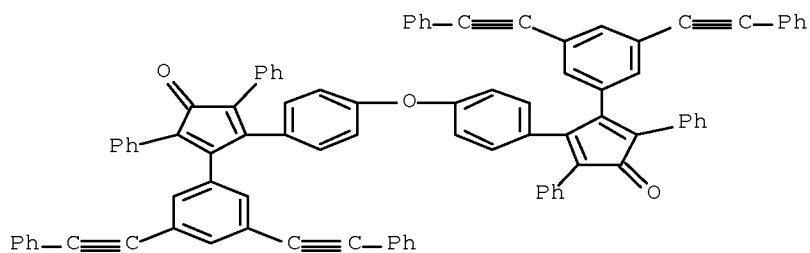
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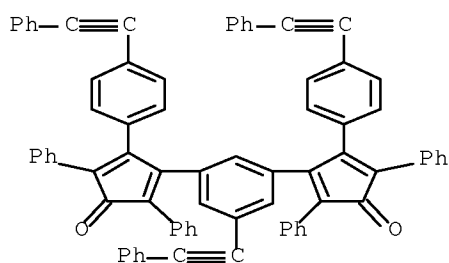
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RN 582323-51-1 HCAPLUS

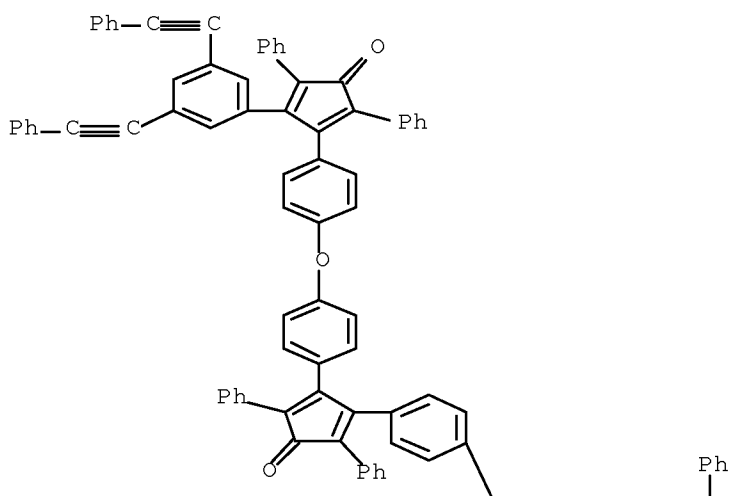
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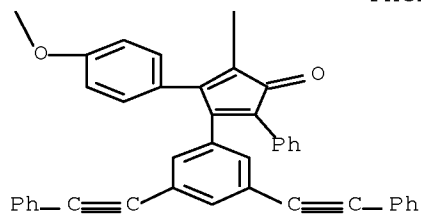
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PAGE 1-A

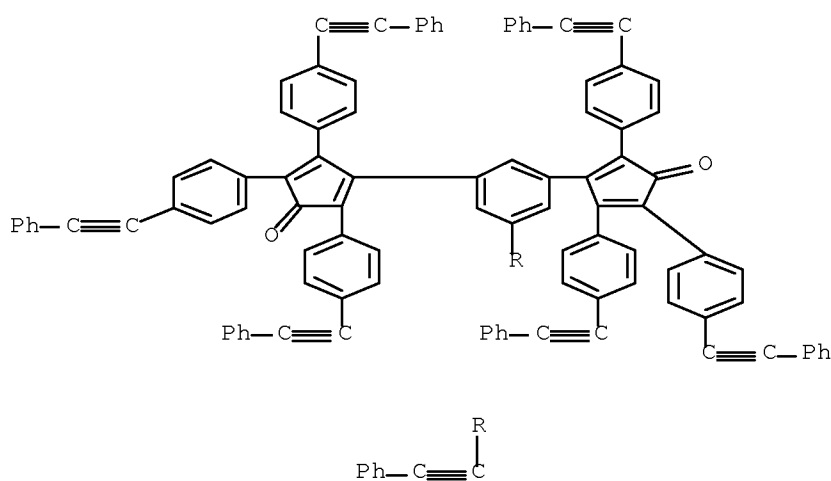


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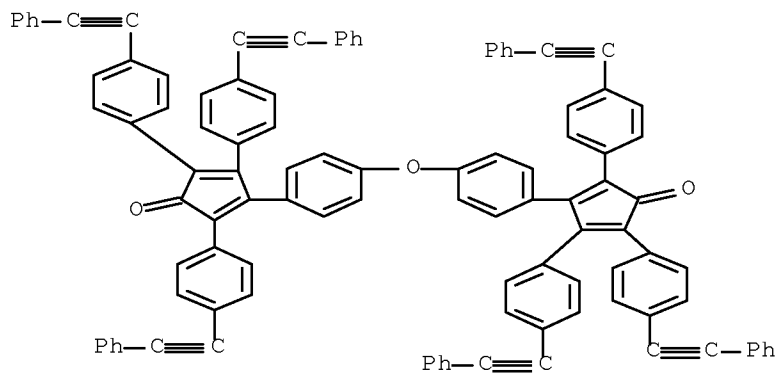
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CN 2,4-Cyclopentadien-1-one, 3,3'-[5-(phenylethynyl)-1,3-phenylene]bis[2,4,5-tris[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



RN 582323-69-1 HCAPLUS

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RN 671780-29-3 HCAPLUS

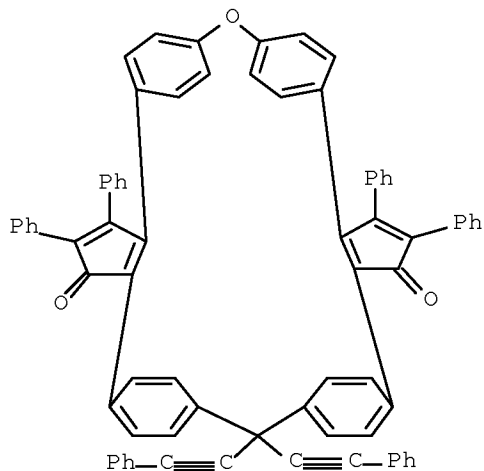
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mixt. with 3-[4-[4-[3-oxo-2,5-diphenyl-4-[4-(phenylethynyl)phenyl]-1,4-cyclopentadien-1-yl]phenoxy]phenyl]-4,5-diphenyl-2-[4-(phenylethynyl)phenyl]-2,4-cyclopentadien-1-one and 3,3'-(oxydi-4,1-phenylene)bis[2,4-diphenyl-5-[4-(phenylethynyl)phenyl]-2,4-cyclopentadien-1-one] (9CI) (CA INDEX NAME)

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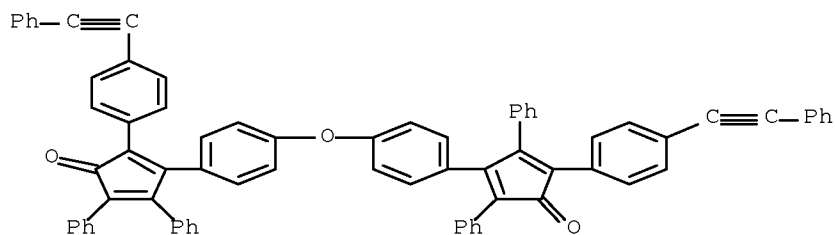
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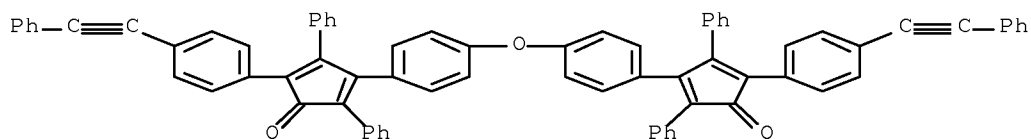
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CRN 582323-22-6

CMF C74 H46 O3



IC ICM B32B003-26

INCL 428304400

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 25, 37

IT 582323-31-7P 582323-33-9P 582323-67-9P 582323-70-4P

582323-72-6P 582323-75-9P 671780-34-0P

671780-35-1P 671780-36-2P 671780-37-3P 671780-38-4P

671780-39-5P 672287-67-1P

RL: IMF (Industrial manufacture); PREP (Preparation)

(multifunctional aromatic acetylene monomers for manufacture of crosslinked polymers and porous films)

IT 406721-21-9P 582323-26-0P 582323-30-6P

582323-37-3P 582323-43-1P 582323-51-1P

582323-53-3P 582323-55-5P 582323-69-1P

582323-78-2P 671780-29-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(multifunctional aromatic acetylene monomers for manufacture of crosslinked polymers and porous films)

L25 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:656812 HCAPLUS Full-text

DOCUMENT NUMBER: 139:197922

TITLE: Multifunctional monomers and their use in making crosslinked polymers and porous films for use in semiconductors

INVENTOR(S): Niu, Qing Shan J.; Hefner, Robert E., Jr.; Godschalx, James P.

PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA; Pechacek, James T.; Arndt, Kim E.

SOURCE: PCT Int. Appl., 108 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003068825	A2	20030821	WO 2003-US4221	20030212
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RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,			

EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,  
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG

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CN 1646463            A        20050727        CN 2003-808460  
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PRIORITY APPLN. INFO.:            US 2002-78205        A  
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                                 WO 2003-US4221        W  
200302  
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OTHER SOURCE(S):            MARPAT 139:197922

AB    This invention is a monomer comprising at least two dienophile groups and at least two ring structures which ring structures are characterized by the presence of two conjugated carbon-to-carbon double bonds and the presence of a leaving group L, wherein L is characterized that when the ring structure reacts with a dienophile in the presence of heat or other energy sources, L is removed to form an aromatic ring structure. This invention is also curable oligomers and polymers and highly crosslinked polymers made with such monomers. Moreover, this invention is a method of making porous films by combining such monomers or their oligomers with a porogen, curing the polymer and removing the porogen. 3,3'-(Oxy-di-1,4-phenylene)-4,4'-bis[4-phenylethynylphenyl]-2,5- diphenylcyclopentadienone was prepared and cured to a polymer.

IT    582323-72-6P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)

(multifunctional monomers and their use in making crosslinked polymers and porous films for use in semiconductors)

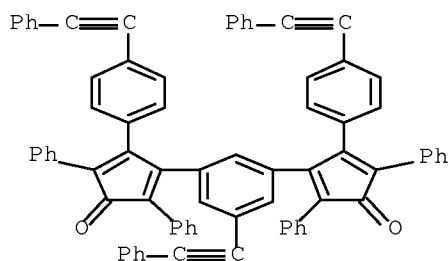
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CN    2,4-Cyclopentadien-1-one, 3,3'-[5-(phenylethynyl)-1,3-phenylene]bis[2,5-diphenyl-4-[4-(phenylethynyl)phenyl]-, homopolymer (9CI)    (CA INDEX NAME)

CM    1

CRN   582323-51-1

CMF   C76 H46 O2



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582323-24-8P 582323-26-0P 582323-30-6P

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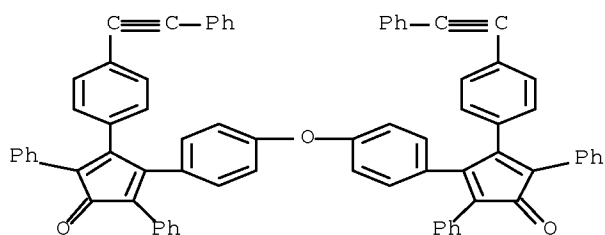
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(multifunctional monomers and their use in making crosslinked  
polymers and porous films for use in semiconductors)

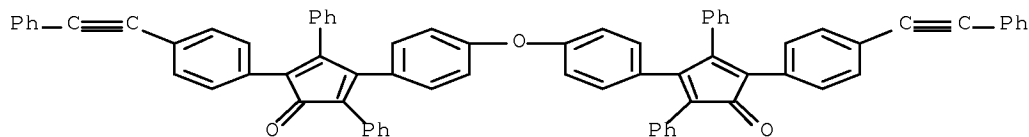
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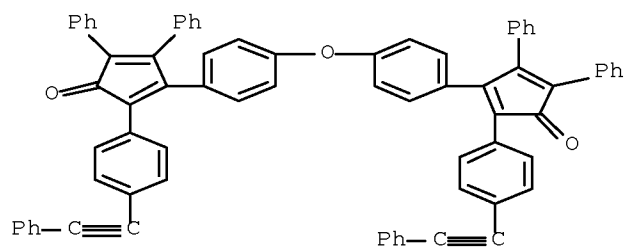
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CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,4-diphenyl-  
5-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



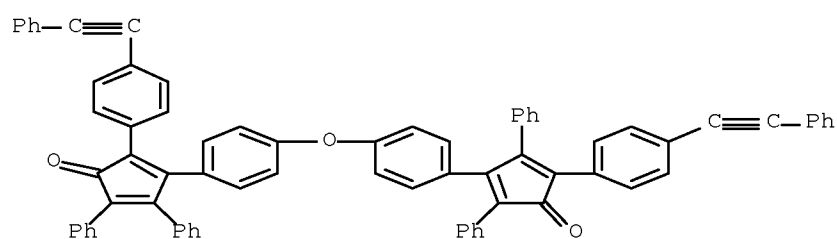
RN 582323-23-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[4,5-diphenyl-  
2-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



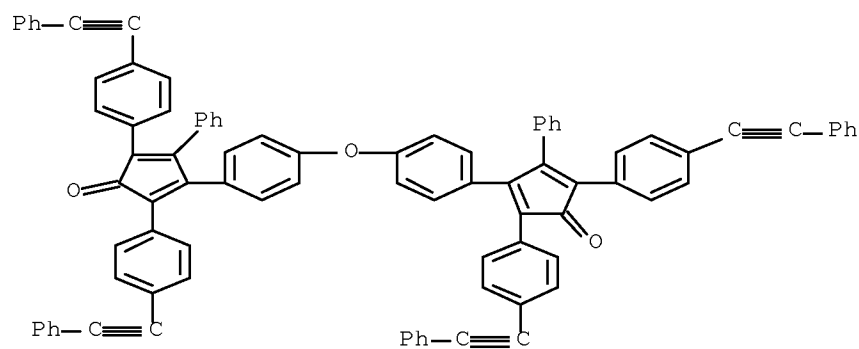
RN 582323-24-8 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3-[4-[4-[3-oxo-2,5-diphenyl-4-[4-(phenylethynyl)phenyl]-1,4-cyclopentadien-1-yl]phenoxy]phenyl]-4,5-diphenyl-2-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



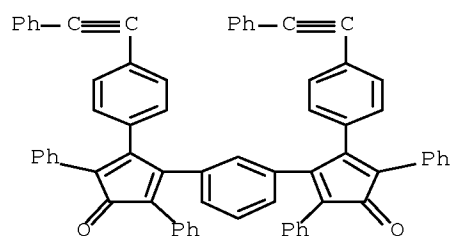
RN 582323-26-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[4-phenyl-2,5-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



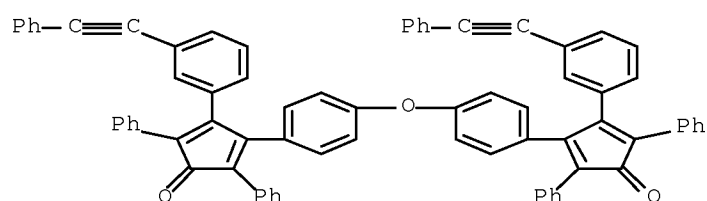
RN 582323-30-6 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(1,3-phenylene)bis[2,5-diphenyl-4-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



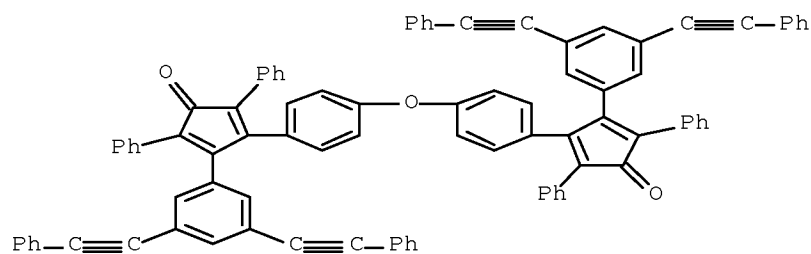
RN 582323-37-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,5-diphenyl-4-[3-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



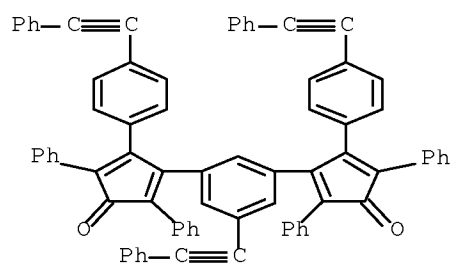
RN 582323-43-1 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,5-diphenyl-4-[3,5-bis(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



RN 582323-51-1 HCAPLUS

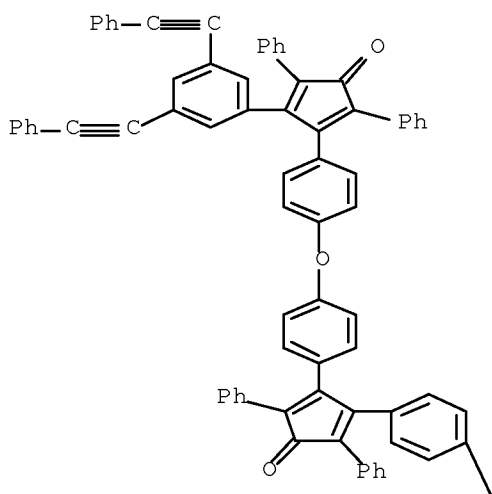
CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,5-diphenyl-4-[5-(phenylethynyl)-1,3-phenylene]bis[2,5-diphenyl-4-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)





RN 582323-53-3 HCAPLUS

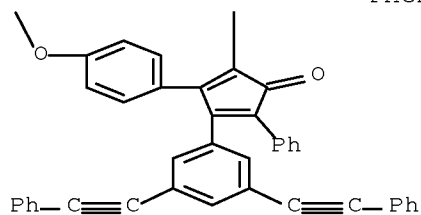
CN 2,4-Cyclopentadien-1-one, 3,4-bis[4-[4-[5-[3,5-bis(phenylethynyl)phenyl]-3-oxo-2,4-diphenyl-1,4-cyclopentadien-1-yl]phenoxy]phenyl]-2,5-diphenyl- (9CI) (CA INDEX NAME)



PAGE 1-A

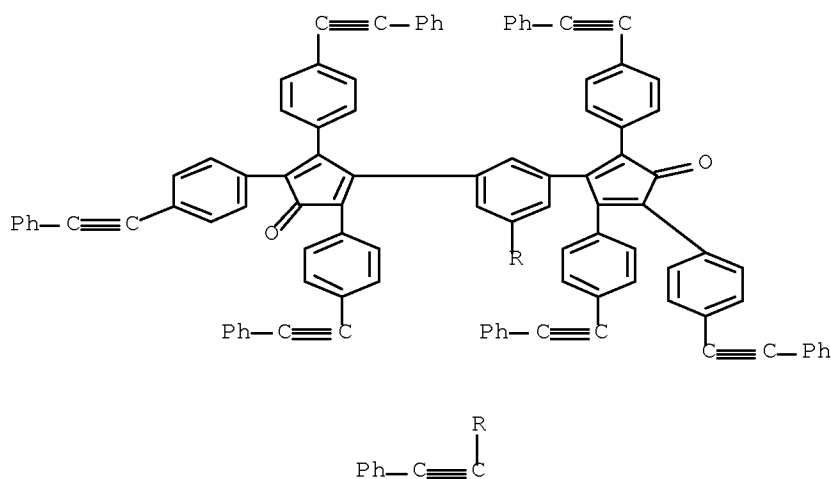
Ph  
|

PAGE 2-A



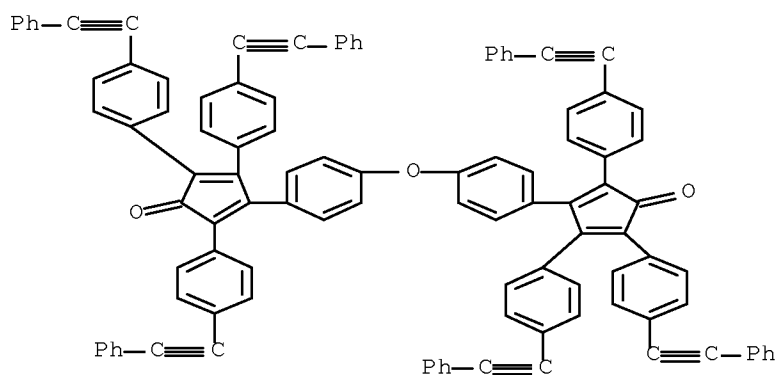
RN 582323-55-5 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-[5-(phenylethynyl)-1,3-phenylene]bis[2,4,5-tris[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



RN 582323-69-1 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,4,5-tris(4-phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM C08F

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

IT 582323-67-9P 582323-70-4P 582323-72-6P 582323-75-9P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)

(multifunctional monomers and their use in making crosslinked polymers and porous films for use in semiconductors)

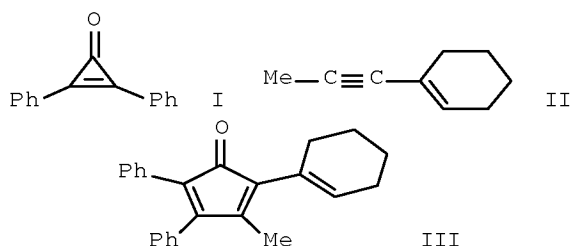
IT 14062-25-0P, ETHYL 4-BROMOPHENYLACETATE 37859-24-8P, 4-BROMOPHENYLACETYL CHLORIDE 52584-23-3P, 1,3-PHENYLENEDIACETYL CHLORIDE 53831-51-9P 54523-47-6P, 1,3-BIS(4-BROMOPHENYL)-2-PROPANONE 64180-18-3P 65636-25-1P 78302-97-3P 90016-25-4P 98288-51-8P, 3-BROMOPHENYLACETYL CHLORIDE 406721-21-9P 582323-20-4P 582323-21-5P 582323-22-6P 582323-23-7P 582323-24-8P 582323-25-9P 582323-26-0P 582323-27-1P 582323-29-3P 582323-30-6P 582323-34-0P 582323-35-1P 582323-36-2P 582323-37-3P 582323-38-4P 582323-39-5P 582323-40-8P 582323-41-9P 582323-42-0P 582323-43-1P 582323-44-2P 582323-47-5P 582323-49-7P 582323-51-1P

582323-53-3P 582323-55-5P 582323-60-2P  
582323-62-4P 582323-64-6P 582323-69-1P 582323-78-2P  
582323-81-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)  
(multifunctional monomers and their use in making crosslinked  
polymers and porous films for use in semiconductors)

=> d 126 ibib abs hitstr hitind 1-15

L26 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2006:1246887 HCAPLUS Full-text  
DOCUMENT NUMBER: 146:142295  
TITLE: Cyclopentadienone Synthesis by  
Rhodium(I)-Catalyzed [3+2] Cycloaddition  
Reactions of Cyclopropenones and Alkynes  
AUTHOR(S): Wender, Paul A.; Paxton, Thomas J.; Williams,  
Travis J.  
CORPORATE SOURCE: Departments of Chemistry and of Molecular  
Pharmacology, Stanford University, Stanford, CA,  
94305-5080, USA  
SOURCE: Journal of the American Chemical Society (2006),  
128(46), 14814-14815  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 146:142295  
GI



AB The Rh(I)-catalyzed [3+2] cycloaddn. of cyclopropenones and alkynes provides a highly efficient and regiocontrolled route to cyclopentadienones (CPDs), building blocks of widespread use in the synthesis of natural and non-natural products, therapeutic leads, polymers, dendrimers, devices, and antigen presenting scaffolds. The versatility of the method is explored with 23 examples representing a wide range of alkyne variations (arylalkyl-, dialkyl-, heteroarylalkyl-) and diaryl- as well as arylalkylcyclopropenones. Thus, reaction of the diphenylcyclopropenone I with the cyclohexenylpropyne II in toluene containing [RhCl(CO)<sub>2</sub>]<sub>2</sub> at 80° for 3 h gave 88% cyclohexenylcyclopentadienone III. The reactions often proceed in high yield using minimal catalyst loadings and in all cases examined proceed with high or complete regioselectivity. The reaction is readily scalable to produce gram quantities of cycloadduct and provides a unique and versatile route to CPDs that would be otherwise difficult to obtain.

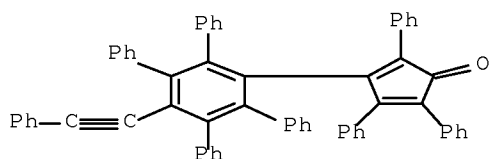
IT 919096-97-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation)

(crystal structure triphenylcyclopentadienone derivative prepared by Rh  
complex-catalyzed cycloaddn. of cyclopropenone with  
diphenylbutadiene)

RN 919096-97-2 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3-[4',5'-diphenyl-6'-(2-  
phenylethynyl)[1,1':2',1''-terphenyl]-3'-yl]-2,4,5-triphenyl- (CA  
INDEX NAME)



CC 24-4 (Alicyclic Compounds)

IT 919096-97-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation)

(crystal structure triphenylcyclopentadienone derivative prepared by Rh  
complex-catalyzed cycloaddn. of cyclopropenone with  
diphenylbutadiene)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1212689 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 146:122329

TITLE: Novel branched polyphenylenes based on A2/B3 and  
AB2/AB monomers via Diels-Alder cycloaddition

AUTHOR(S): Stumpe, Katrin; Komber, Hartmut; Voit, Brigitte  
I.

CORPORATE SOURCE: Leibniz Institute of Polymer Research Dresden  
e.V., Dresden, 01069, Germany

SOURCE: Macromolecular Chemistry and Physics (2006),  
207(20), 1825-1833

CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel hyperbranched polyphenylenes based on both an A2 + B3 and an AB2 + AB  
approach were synthesized and characterized. Different monomers were prepared  
and polymerized using a Diels-Alder reaction with subsequent decarbonylation.  
The polymer backbones consist of hexaphenylbenzene units which are linked in  
different positions and functionalized by cyclopentadienone (A) and/or alkyne  
groups (B) depending on the monomer ratio. The structure and properties of  
the resulting polymers were compared to those of hyperbranched polyphenylenes  
based solely on an AB2 monomer. All branched products showed high thermal  
stability and good solubility in common organic solvents such as chloroform or  
toluene. However, due to steric hindrance, the polyphenylenes produced using  
the A2 + B3 approach exhibited a high percentage of linear units within the  
polymer structure.

IT 198291-05-3P 204520-88-7P

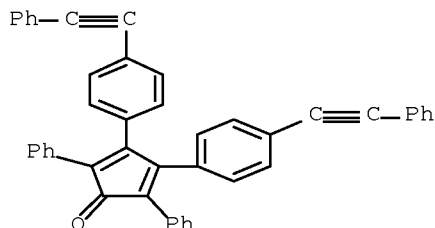
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(novel branched polyphenylenes based on A2/B3 and AB2/AB monomers  
via Diels-Alder cycloaddn.)

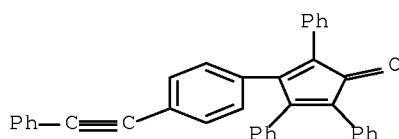
RN 198291-05-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 204520-88-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,5-triphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



CC 35-2 (Chemistry of Synthetic High Polymers)

IT 1605-19-2P, 1,4-Bis(phenylethenyl)benzene 1849-27-0P,

1,4-Bis(phenylethynyl)benzene 3363-97-1P 3432-73-3P

70734-74-6P 118688-56-5P, 1,3,5-Tris(phenylethynyl)benzene

198291-05-3P 204520-88-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)

(novel branched polyphenylenes based on A2/B3 and AB2/AB monomers  
via Diels-Alder cycloaddn.)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1212688 HCAPLUS Full-text

DOCUMENT NUMBER: 146:122668

TITLE: NMR study of hyperbranched polyphenylenes from  
the AB2, (AB2 + AB) and (A2 + B3) methods

AUTHOR(S): Komber, Hartmut; Stumpe, Katrin; Voit, Brigitte  
CORPORATE SOURCE: Leibniz-Institute of Polymer Research Dresden,  
Dresden, 01069, Germany

SOURCE: Macromolecular Chemistry and Physics (2006),  
207(20), 1814-1824

CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

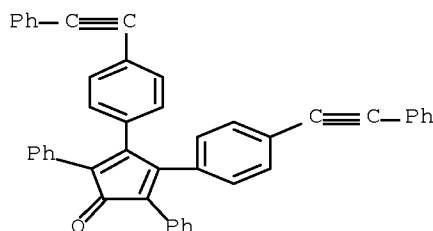
AB The  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of hyperbranched polyphenylenes synthesized from AB<sub>2</sub>, (AB<sub>2</sub> + AB) and (A<sub>2</sub> + B<sub>3</sub>) monomers (A: ethynyl group; B: cyclopentadienonyl group) were analyzed with respect to the characteristic substructures of these polymers. The broad and overlapping NMR spectra were studied by a combination of 1D and 2D NMR techniques. Appropriate model compds. were synthesized, and their  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra were fully assigned. The signal assignments achieved allow to substantiate the different hyperbranched polyphenylene structures. Steric hindrance in densely packed di- and trihexaarylphenyl substituted units of the (A<sub>2</sub> + B<sub>3</sub>) polyphenylenes results in a decrease of the rotation frequency of Ph rings in these structures to such an extent that the motion is slow on the  $^1\text{H}$  NMR time scale. This can be proved both by EXSY and variable-temperature expts. Steric constraints were also deduced for the AB<sub>2</sub> polyphenylenes from signal line shape.

IT 198291-05-3P 204520-88-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);  
PREP (Preparation); RACT (Reactant or reagent)  
(assignment of NMR bands to structure of prepared hyperbranched polyphenylenes)

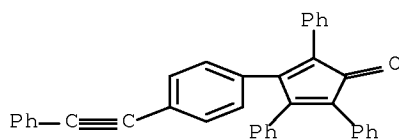
RN 198291-05-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 204520-88-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,5-triphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



CC 36-2 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 35

IT 3432-73-3P 118688-56-5P, 1,3,5-Tris(phenylethynyl)benzene  
198291-05-3P 204520-88-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);  
PREP (Preparation); RACT (Reactant or reagent)  
(assignment of NMR bands to structure of prepared hyperbranched polyphenylenes)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:10932 HCAPLUS Full-text

DOCUMENT NUMBER: 144:109346

TITLE: Method of forming nanoporous polyarylene  
dielectric films for use in integrated circuit  
manufactureINVENTOR(S): Niu, Jason Q.; Hahnfeld, Jerry L.; Lyons, John  
W.; Sedon, James H.; Silvis, Craig H.

PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006001790	A1	20060105	WO 2004-US18390	20040610
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1758953	A1	20070307	EP 2004-754861	20040610
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1968998	A	20070523	CN 2004-80043298	20040610
JP 2008502786	T	20080131	JP 2007-527165	20040610
KR 2007031326	A	20070319	KR 2006-725868	20061208
US 20080090007	A1	20080417	US 2007-660558	20070216
PRIORITY APPLN. INFO.:			WO 2004-US18390	W 20040610

AB The method comprises forming a coating solution containing a matrix precursor material, a porogen material and a solvent, wherein the polyarylene matrix precursor material can be crosslinked to form a matrix with calculated crosslink moiety d.  $\geq 0.003$  mol/mL and reacting the polyarylene matrix

precursor material with a porogen which is linear oligomer or polymer formed from monomers containing alkenyl or alkynyl functional monomers and having reactive end groups and weight average mol. weight <5000; applying the coating solution to a substrate and removing the solvent to form a film; and applying energy to the film to crosslinking the matrix precursor and remove the porogens to form pores with average pore size <4 nm.

IT 582323-26-0P 582323-69-1P

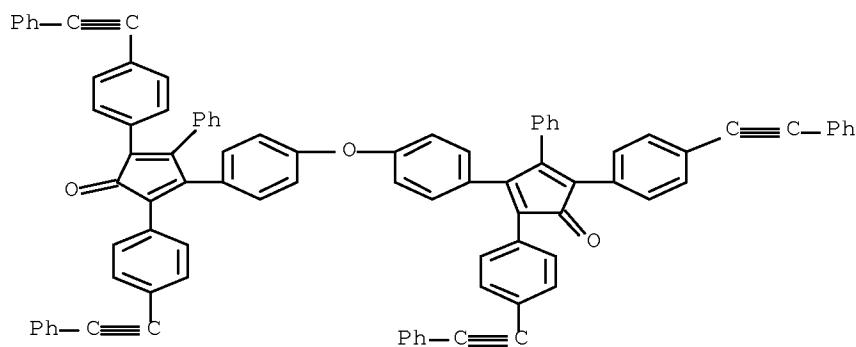
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(monomer; preparation of multifunctional monomers for forming nanoporous polyarylene dielec. films)

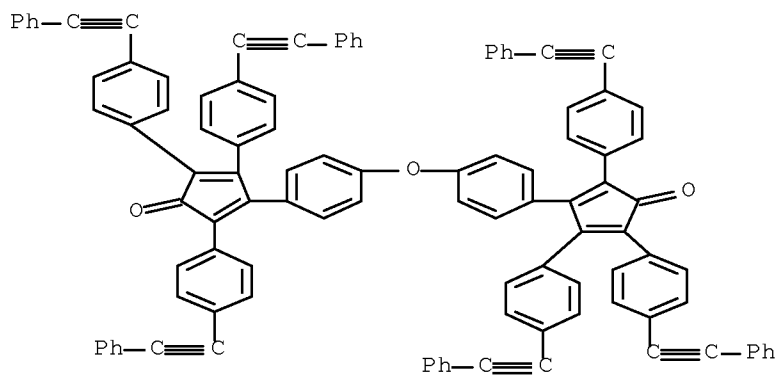
RN 582323-26-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[4-phenyl-2,5-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 582323-69-1 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,4,5-tris[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM C08J009-26

ICS C08L065-00

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

IT 582323-26-0P 582323-69-1P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(monomer; preparation of multifunctional monomers for forming



nanoporous polyarylene dielec. films)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L26 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2005:409583 HCAPLUS Full-text  
DOCUMENT NUMBER: 142:447535  
TITLE: Multifunctional monomers containing bound  
mesogenic porogen forming moieties and  
polyarylene compositions therefrom  
INVENTOR(S): Hefner, Robert E., Jr.  
PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA  
SOURCE: PCT Int. Appl., 55 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
WO 2005042613	A1	20050512	WO 2004-US34329	20041019
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
JP 2007509225	T	20070412	JP 2006-536688	20041019
US 20070027278	A1	20070201	US 2006-575992	20060417
PRIORITY APPLN. INFO.:			US 2003-513106P	P 20031021
			WO 2004-US34329	W 20041019

AB A compound (monomer) comprising (i) one or more dienophile groups (A-functional groups), (ii) one or more ring structures comprising two conjugated carbon-to-carbon double bonds and a leaving group L (B-functional groups), and (iii) one or more chemical bound mesogenic poragen forming moieties, is characterized in that the A-functional group is capable of reaction under cycloaddn. reaction conditions with the B-functional group to thereby form a cross-linked, polyphenylene polymer.

IT 851380-14-8P 851380-18-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)  
(multifunctional monomers containing bound mesogenic porogen forming  
moieties and polyarylene compns. therefrom)

RN 851380-14-8 HCAPLUS

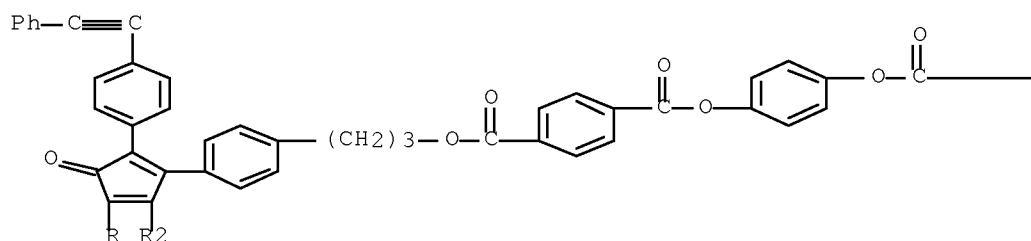
CN Benzenepropanoic acid, 4,4'-[oxybis[4,1-phenylene[4-oxo-3,5-bis[4-(phenylethynyl)phenyl]-2,5-cyclopentadiene-2,1-diyl]]bis-, bis[2-[(26,27,28-trimethoxy-5,11,17,23-tetrapropylpentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaen-25-yl)oxy]ethyl] ester (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

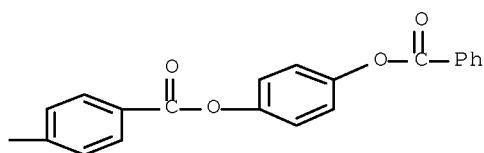
RN 851380-18-2 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, [4-oxo-3,5-bis[4-(phenylethynyl)phenyl]-2,5-cyclopentadiene-1,2-diyl]bis(4,1-phenylene-3,1-propanediyl) bis[4-[[4-[[4-(benzoyloxy)phenoxy]carbonyl]benzoyl]oxy]phenyl] ester (9CI) (CA INDEX NAME)

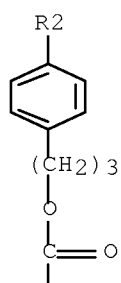
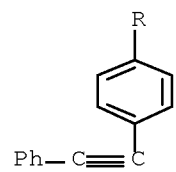
PAGE 1-A



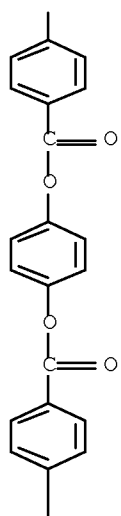
PAGE 1-B



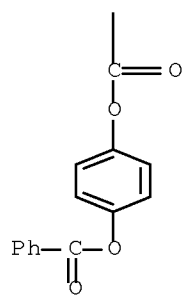
PAGE 2-A



PAGE 3-A



PAGE 4-A



IC ICM C08G061-02  
ICS C08G061-10; C08L065-00; C08L065-02; C08J009-26; C07C049-683;  
C07C049-753  
CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 76  
IT 37859-24-8P, 4-Bromophenylacetyl Chloride 53831-51-9P  
90016-25-4P 851380-08-0P 851380-09-1P 851380-10-4P  
851380-11-5P 851380-12-6P 851380-13-7P 851380-14-8P  
851380-15-9P 851380-16-0P 851380-17-1P 851380-18-2P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)  
(multifunctional monomers containing bound mesogenic porogen forming  
moieties and polyarylene compns. therefrom)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L26 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2005:371203 HCAPLUS Full-text  
DOCUMENT NUMBER: 142:411828  
TITLE: Multifunctional ethynyl substituted monomers and  
polyarylene compositions  
INVENTOR(S): Hefner, Robert E., Jr.  
PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA  
SOURCE: PCT Int. Appl., 37 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005037761	A2	20050428	WO 2004-US34327	200410 19

WO 2005037761 A3 20050804  
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
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GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,  
PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-513107P P  
200310  
21

OTHER SOURCE(S): MARPAT 142:411828

AB A compound (monomer) comprises (i)  $\geq 1$  aryethynyl groups (A-functional groups), (ii)  $\geq 1$  ring structures comprising 2 conjugated C-C double bonds and a leaving group L (B-functional groups), and (iii)  $\geq 1$  ethynyl groups (C'-functional groups), characterized in that the A- and C'-functional groups are

capable of reaction under cycloaddn. reaction conditions with the B-functional groups to form a crosslinked, polyphenylene polymer. The polyphenylenes may have bound porogens which form nanoporous dielec. layers in microelectronic devices. As an example 4,4'-bis[(4-ethynylphenyl)glyoxalyl]phenyl ether was prepared

IT 850401-95-5P

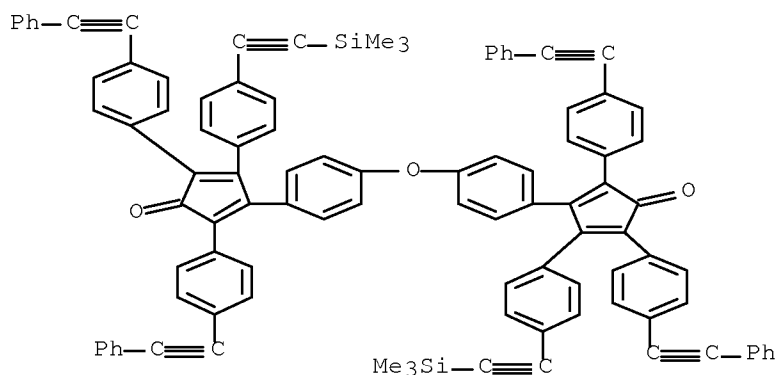
RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(bis(ethynylation); multifunctional ethynyl cyclopentadienone monomers for Diels-Alder reaction forming polyarylenes)

RN 850401-95-5 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,5-bis[4-(phenylethynyl)phenyl]-4-[4-[(trimethylsilyl)ethynyl]phenyl]- (9CI)  
(CA INDEX NAME)



IT 850401-98-8P 850402-00-5P 850402-07-2P

850402-10-7P 850402-13-0P 850402-19-6P

850402-21-0P 850402-23-2P 850402-26-5P

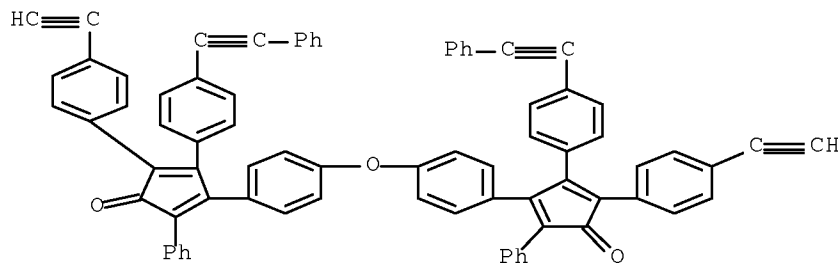
850402-29-8P 850402-32-3P 850402-38-9P

RL: IMF (Industrial manufacture); PREP (Preparation)

(multifunctional ethynyl cyclopentadienone monomers for Diels-Alder reaction forming polyarylenes)

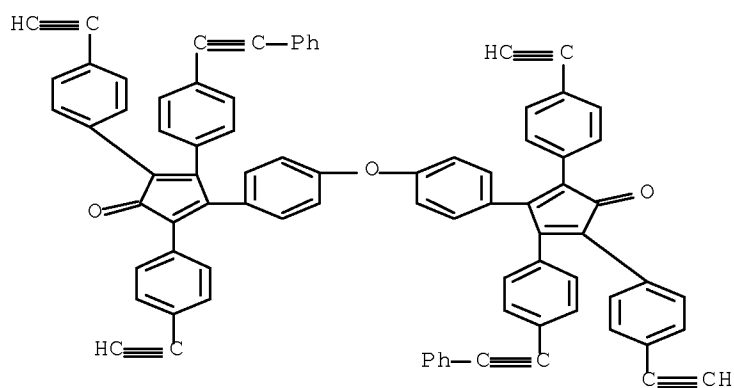
RN 850401-98-8 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[5-(4-ethynylphenyl)-2-phenyl-4-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



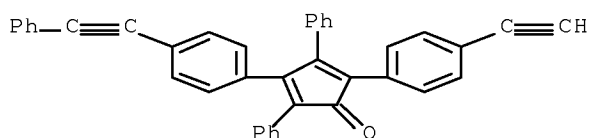
RN 850402-00-5 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[2,5-bis(4-ethynylphenyl)-4-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



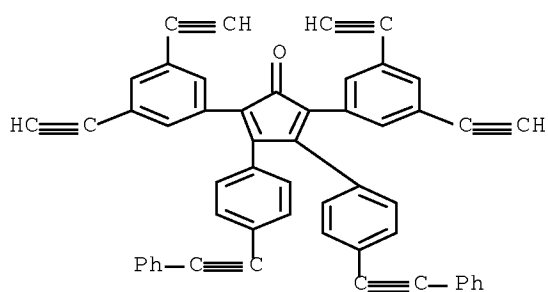
RN 850402-07-2 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2-(4-ethynylphenyl)-3,5-diphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



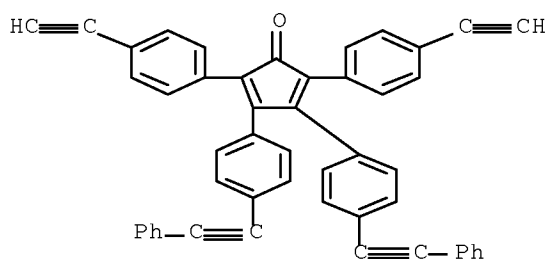
RN 850402-10-7 HCAPLUS

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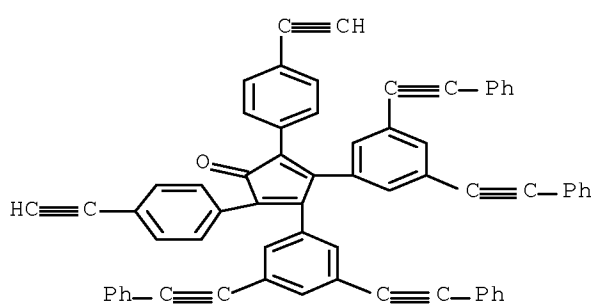
RN 850402-13-0 HCAPLUS

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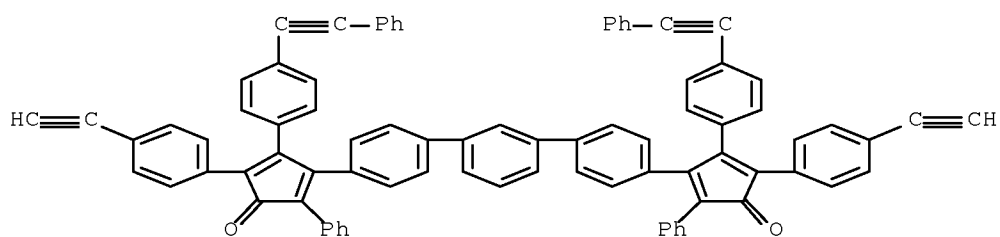
RN 850402-19-6 HCAPLUS

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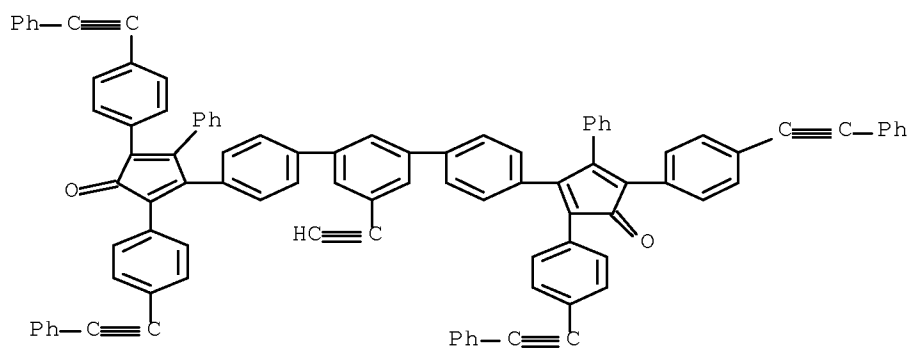
RN 850402-21-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-[1,1':3',1''-terphenyl]-4,4''-  
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(9CI) (CA INDEX NAME)



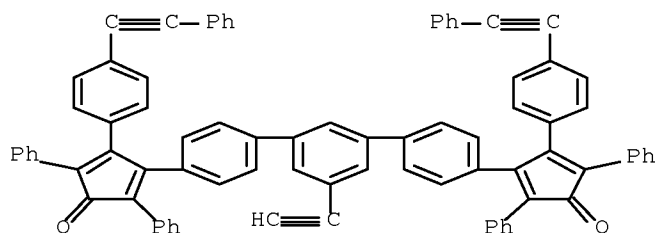
RN 850402-23-2 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-[5'-ethynyl[1,1':3',1''-terphenyl]-  
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INDEX NAME)



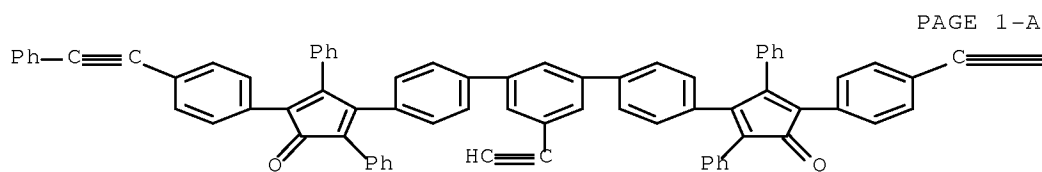
RN 850402-26-5 HCAPLUS

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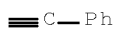


RN 850402-29-8 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(5'-ethynyl[1,1':3',1''-terphenyl]-4,4''-diyl)bis[2,4-diphenyl-5-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



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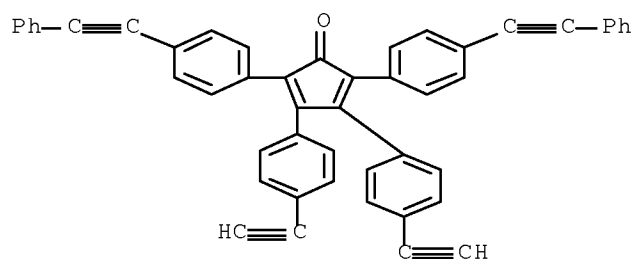


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RN 850402-32-3 HCAPLUS

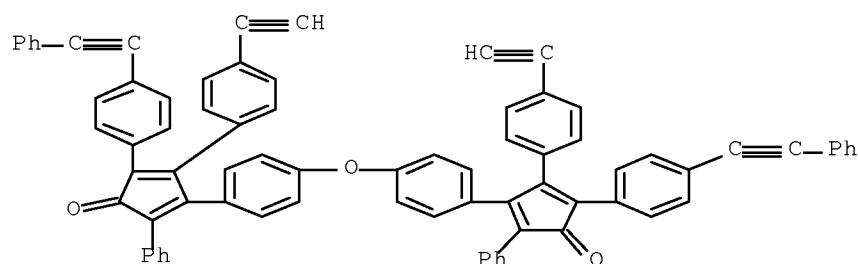
CN 2,4-Cyclopentadien-1-one, 3,4-bis(4-ethynylphenyl)-2,5-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)





RN 850402-38-9 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[4-(4-ethynylphenyl)-2-phenyl-5-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



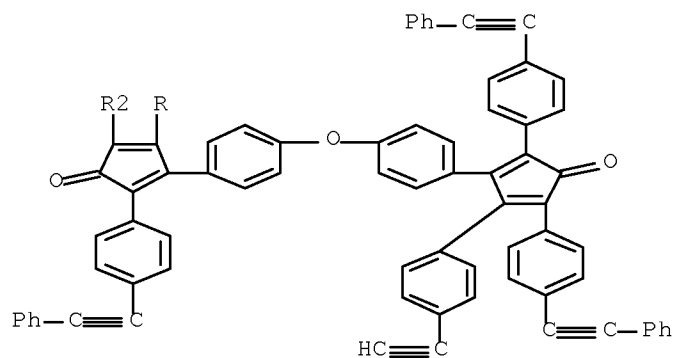
IT 850402-03-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation and polymerization; multifunctional ethynyl cyclopentadienone monomers for Diels-Alder reaction forming polyarylenes)

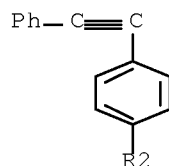
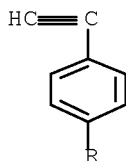
RN 850402-03-8 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(oxydi-4,1-phenylene)bis[4-(4-ethynylphenyl)-2,5-bis[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



PAGE 1-A

PAGE 2-A



IC ICM C07C049-00  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 21, 37, 38  
 IT 77486-64-7P 850401-95-5P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (bis(ethynylation); multifunctional ethynyl cyclopentadienone  
 monomers for Diels-Alder reaction forming polyarylenes)  
 IT 850401-98-8P 850402-00-5P 850402-07-2P  
 850402-10-7P 850402-13-0P 850402-16-3P  
 850402-19-6P 850402-21-0P 850402-23-2P  
 850402-26-5P 850402-29-8P 850402-32-3P  
 850402-35-6P 850402-38-9P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (multifunctional ethynyl cyclopentadienone monomers for  
 Diels-Alder reaction forming polyarylenes)  
 IT 850402-03-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (preparation and polymerization; multifunctional ethynyl cyclopentadienone  
 monomers for Diels-Alder reaction forming polyarylenes)

L26 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:878433 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:366873  
 TITLE: Multifunctional substituted monomers and  
 polyarylene compositions therefrom  
 INVENTOR(S): Hahnfeld, Jerry L.; Hefner, Robert E., Jr.; Li,  
 Yongfu; Niu, Q. Jason  
 PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA  
 SOURCE: PCT Int. Appl., 43 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004090018	A1	20041021	WO 2004-US9972	

200404

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 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,  
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JP 2006525413 T 20061109 JP 2006-509557

200404

01

US 20070027280 A1 20070201 US 2006-549381

200606

30

PRIORITY APPLN. INFO.:

US 2003-459732P

P

200304

02

WO 2004-US9972

W

200404

01

AB The invention relates to a compound useful in the formation of polymeric dielec. films for semiconductor devices and the resulting cured films and devices, where the compound comprises (i)  $\geq 3$  dienophile groups (A-functional groups) and (ii) a single ring structure comprising 2 conjugated carbon-to-carbon double bonds and a leaving group L (collectively referred to as a B-functional group), and is characterized in that one A-functional group of one mol. of the compound is capable of reaction under cycloaddn. reaction conditions with the B-functional group of a second mol. and elimination of the leaving group L, to thereby form a polymer. An example of the monomers is 2,3,4-tri(4-phenylethynylphenyl)-5-phenyl- 2,4-cyclopentadienone.

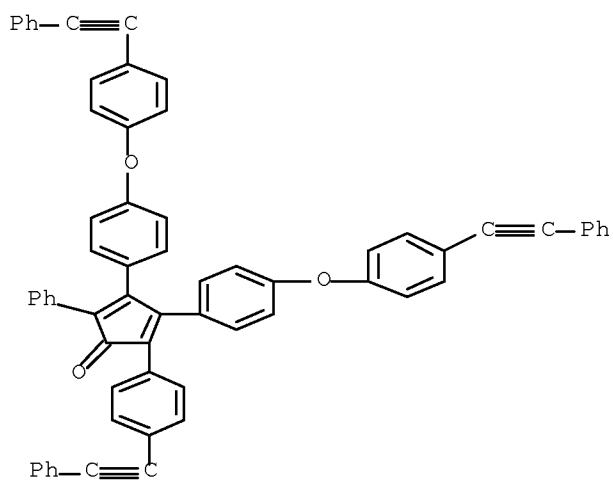
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 777891-38-0P 777891-40-4P 777891-42-6P  
 777891-47-1P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)

(monomers; manufacture of multifunctional substituted monomers for  
 polyarylene compns. with low dielec. constant)

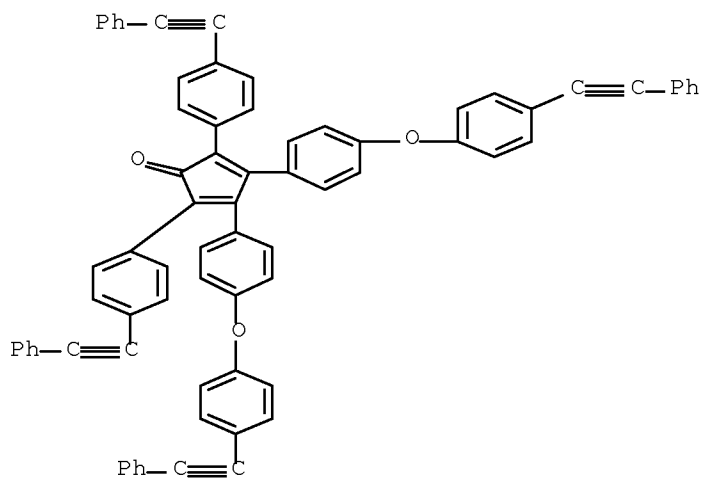
RN 777891-32-4 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2-phenyl-3,4-bis[4-[4-(2-phenylethynyl)phenoxy]phenyl]-5-[4-(2-phenylethynyl)phenyl]- (CA  
 INDEX NAME)



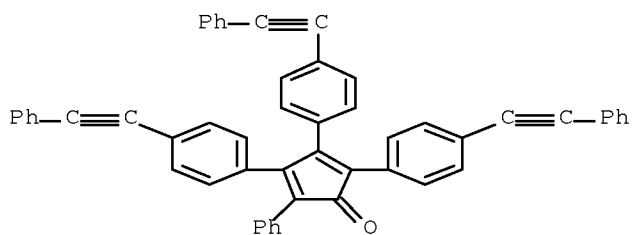
RN 777891-34-6 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,4-bis[4-[4-(2-phenylethynyl)phenoxy]phenyl]-2,5-bis[4-(2-phenylethynyl)phenyl]-  
(CA INDEX NAME)



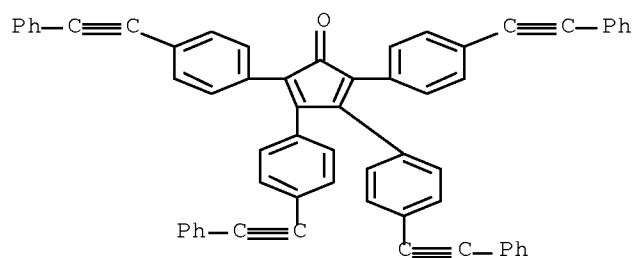
RN 777891-36-8 HCAPLUS

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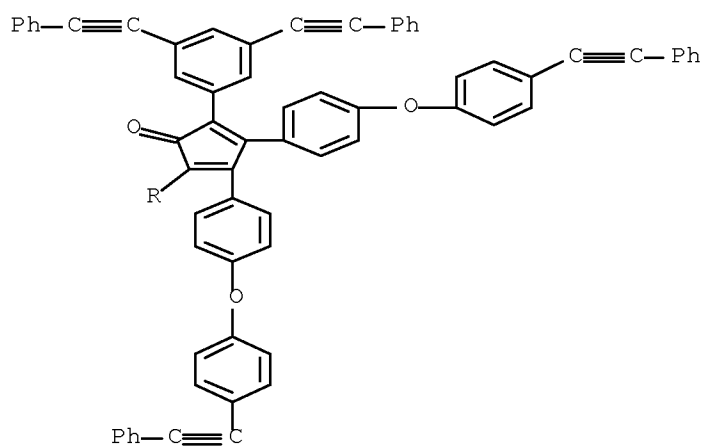
RN 777891-38-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,4,5-tetrakis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



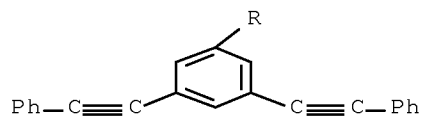
RN 777891-40-4 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-bis[3,5-bis(2-phenylethynyl)phenyl]-3,4-bis[4-[4-(2-phenylethynyl)phenoxy]phenyl]- (CA INDEX NAME)



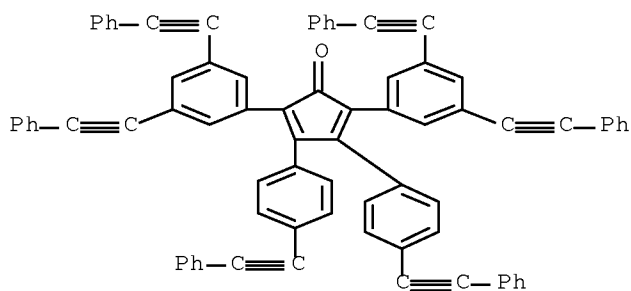
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PAGE 2-A



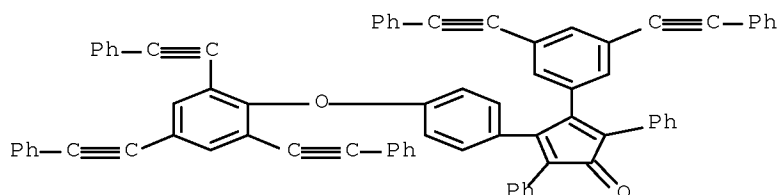
RN 777891-42-6 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-bis[3,5-bis(2-phenylethynyl)phenyl]-3,4-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 777891-47-1 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3-[3,5-bis(2-phenylethynyl)phenyl]-2,5-diphenyl-4-[4-[2,4,6-tris(2-phenylethynyl)phenoxy]phenyl]- (CA INDEX NAME)



IC ICM C08G075-02

ICS C08L065-00; C08L081-00; C08J003-24; C08J009-26

CC 37-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 38, 76

IT 777891-32-4P 777891-34-6P 777891-36-8P

777891-38-0P 777891-40-4P 777891-42-6P

777891-47-1P 777891-56-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(monomers; manufacture of multifunctional substituted monomers for polyarylene compns. with low dielec. constant)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:878356 HCAPLUS Full-text

DOCUMENT NUMBER: 141:350823

TITLE: Multifunctional unsymmetrically substituted monomers, and polyarylene compositions containing a porogen, and film articles

INVENTOR(S): Godschalx, James P.; Hefner, Robert E., Jr.; Niu, Jason Q.; Silvis, H. Craig

PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA

SOURCE: PCT Int. Appl., 31 pp.

CODEN: PIXXD2

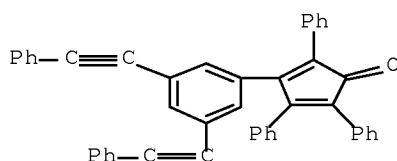
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004089862	A2	20041021	WO 2004-US9973	20040401
WO 2004089862	A3	20041125		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2007521251	T	20070802	JP 2006-509558	20040401
US 20060267000	A1	20061130	US 2006-549382	20060717
US 7381850	B2	20080603		
PRIORITY APPLN. INFO.:			US 2003-459731P	P 20030402
			WO 2004-US9973	W 20040401
AB	A monomer suitable for use in forming low dielec. constant films for semiconductor devices comprises (i) 2 dienophile groups (A-functional groups) attached to a single aromatic ring and (ii) a second ring structure comprising 2 conjugated C-C double bonds and a leaving group L (B-functional group), characterized in that the single aromatic ring is directly covalently attached to one of the double bonded C atoms of the B functional group or to a fused aromatic ring containing 2 such double bonded C atoms of the B-functional group, and one A-functional group of a monomer is capable of reaction under cycloaddn. reaction conditions with the B-functional group of a second monomer to form a polymer.			
IT	776324-97-1P RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (preparation and B-staging; aromatic substituted acetylene, oligomers and B-staged polymers containing porogen for porous dielec. films of low dielec. constant)			
RN	776324-97-1 HCAPLUS			
CN	2,4-Cyclopentadien-1-one, 3-[3,5-bis(2-phenylethynyl)phenyl]-2,4,5-triphenyl- (CA INDEX NAME)			



IC ICM C07C049-00  
 CC 37-2 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 38  
 IT 776324-97-1P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (preparation and B-staging; aromatic substituted acetylene, oligomers and  
 B-staged polymers containing porogen for porous dielec. films of low  
 dielec. constant)

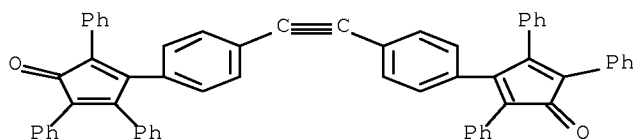
L26 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:501375 HCAPLUS Full-text  
 DOCUMENT NUMBER: 135:242600  
 TITLE: New synthetic approach to the preparation of  
 polyphenyleneethynylenes and  
 polyheteroaryleneethynylenes  
 AUTHOR(S): Rusanov, A. L.; Keshtov, M. L.; Belomoina, N. M.  
 CORPORATE SOURCE: A N Nesmeyanov Institute of Organo-Element  
 Compounds, Russian Academy of Sciences, Moscow,  
 117813, Russia  
 SOURCE: High Performance Polymers (2001), 13(2),  
 S153-S168  
 CODEN: HPPOEX; ISSN: 0954-0083  
 PUBLISHER: Institute of Physics Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Polyphenyleneethynylenes and polyheteroaryleneethynylenes-polymers with  
 promising electro-optical properties-are usually prepared by the interaction  
 of dihaloarom. and diethynylarom. compds. catalyzed with transition metal  
 (first of all, Pd) derivs. Because of the side reactions these procedures  
 often lead to the formation of relatively low mol. weight polymers; in  
 addition, preparation of organo-soluble polyphenyleneethynylenes and  
 polyheteroaryleneethynylenes seems to be rather problematic. In the framework  
 of the present investigation we have developed a new synthetic approach to the  
 preparation of polyphenyleneethynylenes and polyheteroaryleneethynylenes. This  
 approach is based on the utilization of acetylene-containing monomers (e.g.  
 bis- $\alpha$ -diketones, bis-cyclopentadienones and diacetylenearylenes) in smoothly-  
 proceeding polymer-forming reactions (the formation of polyphenylquinoxalines  
 and phenylated polyphenylenes). This approach leads to the preparation of  
 high mol. weight polyphenyleneethynylenes and polyphenylquinoxalineethynylenes  
 combining solubility in organic solvents with film-forming properties.

IT 292167-47-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (preparation of polyphenyleneethynylenes and  
 polyheteroaryleneethynylenes)

RN 292167-47-6 HCAPLUS  
 CN 2,4-Cyclopentadien-1-one, 3,3'-(1,2-ethynediyl)-4,1-  
 phenylene)bis[2,4,5-triphenyl- (9CI) (CA INDEX NAME)





CC 35-5 (Chemistry of Synthetic High Polymers)

IT 21850-32-8P 106877-52-5P 153295-62-6P 260562-19-4P  
292167-47-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)

(preparation of polyphenyleneethynylenes and  
polyheteroaryleneethynylenes)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:404713 HCAPLUS Full-text

DOCUMENT NUMBER: 135:153176

TITLE: New phenylated: fluoro-containing  
poly(phenylenes)

AUTHOR(S): Rusanov, A. L.; Keshtov, M. L.; Khokhlov, A. R.;  
Keshtova, S. V.; Peregudov, A. S.

CORPORATE SOURCE: Nesmeyanov Institute of Organoelement Compounds,  
Russian Academy of Sciences, Moscow, 117813,  
Russia

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i  
Seriya B (2001), 43(4), 581-587  
CODEN: VSSBEE; ISSN: 1023-3091

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB New bis(cyclopentadienone) group-containing monomer with Ph and fluorinated Ph  
substituents, i.e., 4,4'-bis[2,5-diphenyl-3-(p- fluorophenyl)-cyclopentadien-  
1-on-4-yl]tolane, was synthesized. The interaction of this compound with  
various diethynylarylenes according to the Diels-Alder reaction yielded new  
fluoro-containing phenylated poly(phenylenes) combining good solubility in  
organic solvents with high thermal characteristics and low dielec. consts.

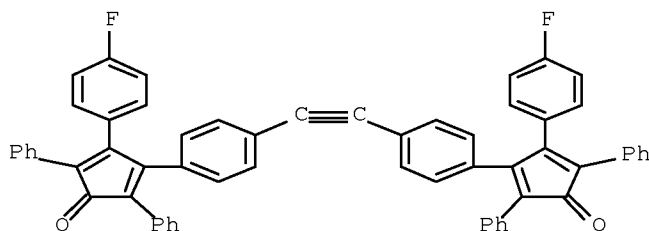
IT 352461-49-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)

(monomer; preparation and properties of fluoropolymer-polyacetylenes  
containing Ph and phenylene groups by Diels-Alder polymerization of  
cyclopentadienone group-containing monomer with diethynylarylenes)

RN 352461-49-5 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(1,2-ethynediyl-di-4,1-phenylene)bis[4-  
(4-fluorophenyl)-2,5-diphenyl- (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

IT 352461-49-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(monomer; preparation and properties of fluoropolymer-polyacetylenes containing Ph and phenylene groups by Diels-Alder polymerization of cyclopentadienone group-containing monomer with diethynylarylenes)

L26 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:546313 HCAPLUS Full-text

DOCUMENT NUMBER: 133:223129

TITLE: Acetylene-containing phenylated polyphenylenes

AUTHOR(S): Rusanov, A. L.; Keshtov, M. L.; Belomoina, N. M.

CORPORATE SOURCE: Inst. Elementoorg. Soedinenii im. A. N.

Nesmeyanova, Ross. Akad. Nauk, Moscow, 117813, Russia

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i

Seriya B (2000), 42(3), 399-403

CODEN: VSSBEE; ISSN: 1023-3091

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB A new monomer, 4,4'-bis(2,3,5-triphenylcyclopentadien-4-yl-1-on)tolane was synthesized by the reaction of 4,4'-bis(phenylglyoxalyl)tolane with a twofold molar amount of 1,3-diphenylacetone in ethanol. New acetylene-containing phenylated polyphenylenes were obtained from this monomer and bis(acetylenes) by the Diels-Alder reaction in trichlorobenzene. Some properties of the resulting polymers and the related films were studied, and it was demonstrated that the synthesized polymers can be crosslinked via triple bonds.

IT 292167-47-6P

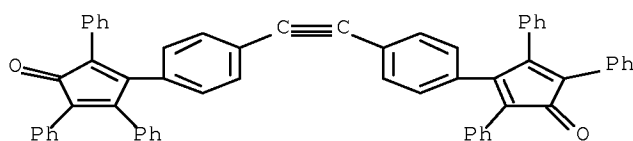
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(monomer; synthesis and characterization of acetylene-containing phenylated polyphenylenes)

RN 292167-47-6 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 3,3'-(1,2-ethynediyl-di-4,1-phenylene)bis[2,4,5-triphenyl- (9CI) (CA INDEX NAME)



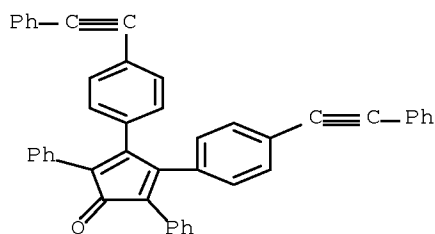
CC 35-7 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36  
IT 292167-47-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(monomer; synthesis and characterization of acetylene-containing  
phenylated polyphenylenes)

L26 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2000:468095 HCAPLUS Full-text  
DOCUMENT NUMBER: 133:89975  
TITLE: Crosslinkable polyphenylene oligomers and  
polymers useful as dielectric resins in  
microelectronic fabrication  
INVENTOR(S): Godschalx, James P.; Romer, Duane R.; So, Ying  
Hung; Lysenko, Zenon; Mills, Michael E.; Buske,  
Gary R.; Townsend, Paul H., III; Smith, Dennis  
W., Jr.; Martin, Steven J.; Devries, Robert A.  
PATENT ASSIGNEE(S): Dow Chemical Co., USA  
SOURCE: Jpn. Kokai Tokkyo Koho, 68 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2000191752	A	20000711	JP 1998-370438	199812 25
PRIORITY APPLN. INFO.: JP 1998-370438				199812 25

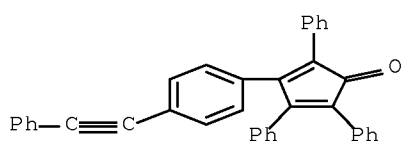
AB The oligomers and polymers are the Diels-Alder reaction products of compds. bearing  $\geq 2$  diene functional groups such as cyclopentadienone groups with compds. bearing  $\geq 2$  dienophile functional groups such as aromatic acetylene groups where at least 1 of the compds. has 3 of the functional groups. Resin compns. containing the oligomers and polymers have low dielec. constant, good gap fill, planarizing property and resistance to heat and moisture. Thus, heating 3,3'-(1,4-phenylene)bis(2,5-di(4-fluorophenyl)-4-phenylcyclopentadienone) 316 with 1,3-bis(phenylethynyl)benzene 72 and 1,3,5-tris(phenylethynyl)benzene 44 mg in 1,3-diisopropylbenzene at reflux for 42 h gave a viscous product which was spin coated on a wafer and heated at 400° for 1 h to give a film.

IT 198291-05-3P 204520-88-7P 204521-04-0P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)  
(intermediate; crosslinkable polyphenylene oligomers and polymers  
useful as dielec. resins in microelectronic fabrication)  
RN 198291-05-3 HCAPLUS  
CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-  
phenylethynyl)phenyl]- (CA INDEX NAME)



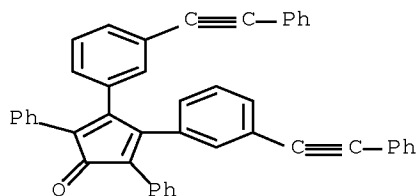
RN 204520-88-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,5-triphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 204521-04-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[3-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



IC ICM C08G061-10

CC 35-7 (Chemistry of Synthetic High Polymers)

IT 1849-26-9P, 4-(Phenylethynyl)phenol 1849-27-0P,  
 1,4-Bis(phenylethynyl)benzene 2001-29-8P, 4-Bromodeoxybenzoin  
 3432-73-3P, 3,3'-(1,4-Phenylene)bis(2,4,5-  
 triphenylcyclopentadienone) 4254-18-6P, 4,4'-Dibromobenzoin  
 13092-45-0P, 3,3'-(Oxydi-1,4-phenylene)bis(2,4,5-  
 triphenylcyclopentadienone) 13141-36-1P, 1,3-  
 Bis(phenylethynyl)benzene 21368-80-9P 21454-19-3P,  
 4,4'-Bis(phenylglyoxaloyl)diphenyl ether 33527-94-5P, 4-Iodophenyl  
 acetate 35578-47-3P, 4,4'-Dibromobenzil 37859-24-8P,  
 4-Bromophenylacetyl chloride 39229-12-4P, 4-Bromobenzil  
 51930-25-7P 59745-29-8P, 4,4'-Bis(phenylethynyl)diphenyl ether  
 70734-74-6P 91960-97-3P, 3,3'-Dibromobenzil 118688-56-5P,  
 1,3,5-Tris(phenylethynyl)benzene 151041-82-6P 164403-02-5P  
 198291-05-3P 198291-09-7P 204520-88-7P  
 204520-96-7P, 4,4'-Bis[4-(phenylethynyl)phenoxy]-2,2',3,3',5,5',6,6'-  
 octafluorobiphenyl 204520-98-9P 204521-00-6P  
 204521-04-0P 204521-06-2P 204521-07-3P 204521-22-2P  
 204521-23-3P 204521-24-4P 204521-25-5P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (intermediate; crosslinkable polyphenylene oligomers and polymers  
 useful as dielec. resins in microelectronic fabrication)

L26 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:655982 HCAPLUS Full-text

DOCUMENT NUMBER: 131:272357

TITLE: Polyphenylene oligomers, uncured polymer or  
 cured polymer, and polyfunctional compound for  
 dielectrics

INVENTOR(S): Godschalx, James P.; Romer, Duane R.; So, Ying  
 Hung; Lysenko, Zenon; Mills, Michael E.; Buske,  
 Gary R.; Townsend, Paul H., III; Smith, Dennis  
 W., Jr.; Martin, Steven J.; Devries, Robert A.

PATENT ASSIGNEE(S): The Dow Chemical Company, USA

SOURCE: U.S., 25 pp., Cont.-in-part of U.S. Ser. No.  
 711,838, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 5965679	A	19991012	US 1997-834677	199704 01
WO 9811149	A1	19980319	WO 1997-US15142	199708 28
W: IL, JP, KR, NO, SG RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 889920	A1	19990113	EP 1997-939622	199708 28
EP 889920	B1	20020213		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
EP 1170279	A1	20020109	EP 2001-116968	199708 28
EP 1170279	B1	20040929		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
TW 492981	B	20020701	TW 1997-86113027	199709 09
TW 243181	B	20051111	TW 2002-91103333	199709 09
TW 243182	B	20051111	TW 2002-91103334	199709 09
TW 247757	B	20060121	TW 2002-91103332	199709 09
NO 9805617	A	19981201	NO 1998-5617	199812

KR 2000047306	A	20000725	KR 1998-64107	01
				199812
				30
US 6288188	B1	20010911	US 1999-281838	199903
				31
HK 1019341	A1	20030110	HK 1999-102970	199907
				12
HK 1045147	A1	20050520	HK 2002-105046	199907
				12
PRIORITY APPLN. INFO.:			US 1996-711838	B2
				199609
				10
			US 1997-834677	A
				199704
				01
			EP 1997-939622	A3
				199708
				28
			WO 1997-US15142	W
				199708
				28
			HK 1999-102970	A
				199907
				12

AB An oligomer, uncured polymer or cured polymer comprises the reaction product of  $\geq 1$  polyfunctional compds. containing  $\geq 2$  cyclopentadienone groups and  $\geq 1$  polyfunctional compound containing  $\geq 2$  aromatic acetylene groups where at least some of the polyfunctional compds. contain  $\geq 3$  reactive groups. Thus, 3,3'-(oxydi-1,4-phenylene)bis(2,4,5-triphenylcyclopentadienone) 100, and 1,3,5-tris(phenylethynyl)benzene 48.3 g were heated 200° in N-methylpyrrolidone for 8.5 h, spin-coated on a wafer, heated at 325° for 90 s, and cured at 450° for 2 min. under N.

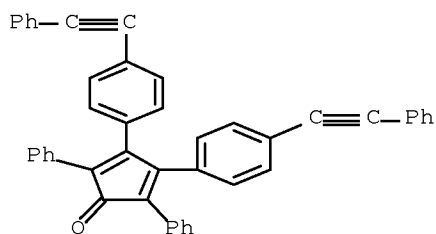
IT 198291-05-3P 204520-88-7P 204521-04-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyphenylene oligomers, uncured polymer or cured polymer for heat stable dielecs. for integrated circuit)

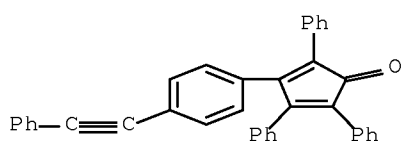
RN 198291-05-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



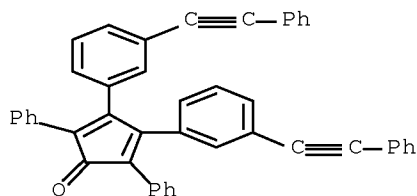
RN 204520-88-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,5-triphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 204521-04-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[3-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



IC ICM C08F038-00

INCL 526281000

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

IT 615-54-3P, 1,2,4-Tribromobenzene 1849-26-9P, 4-(Phenylethynyl)phenol 1849-27-0P 2001-29-8P, 4-Bromodeoxybenzoin 3432-73-3P 4254-18-6P, 4,4'-Dibromobenzoin 13092-45-0P 13141-36-1P 21368-80-9P 21454-19-3P 24253-43-8P 33527-94-5P, 4-Iodophenyl acetate 35578-47-3P, 4,4'-Dibromobenzil 37859-24-8P, 4-Bromophenylacetyl chloride 39229-12-4P, 4-Bromobenzil 51930-25-7P 59745-29-8P 65622-33-5P, 1,3-Bis(4-fluorophenyl)-2-propanone 70734-74-6P 91960-97-3P, 3,3'-Dibromobenzil 118688-56-5P 151041-82-6P 164403-02-5P 198291-05-3P 198291-09-7P 204520-88-7P 204520-96-7P 204520-98-9P 204521-00-6P 204521-04-0P 204521-06-2P 204521-07-3P 204521-22-2P 204521-23-3P 204521-24-4P 204521-25-5P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP

(Preparation); RACT (Reactant or reagent)

(polyphenylene oligomers, uncured polymer or cured polymer for

heat stable dielects. for integrated circuit)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:514220 HCAPLUS Full-text

DOCUMENT NUMBER: 131:272293

TITLE: 2,5-diphenyl-3,4-bis[p-  
(phenylethynyl)phenyl]cyclopentadienone and  
product of its Diels-Alder homocondensation

AUTHOR(S): Rusanov, A. L.; Keshtov, M. L.; Shchegolikhin,  
A. N.; Petrovskii, P. V.; Belomoina, N. M.;  
Keshtova, S. V.; Timofeeva, G. I.; Ronova, I.  
A.; Mullen, K.; Morgenroth, F.

CORPORATE SOURCE: A. N. Nesmeyanov Institute of Organoelement  
Compounds, Russian Academy of Sciences, Moscow,  
117813, Russia

SOURCE: Russian Chemical Bulletin (Translation of  
Izvestiya Akademii Nauk, Seriya Khimicheskaya)  
(1999), 48(5), 944-948

CODEN: RCBUEY; ISSN: 1066-5285

PUBLISHER: Consultants Bureau

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new monomer of the ABA type, 2,5-diphenyl-3,4-bis[p-  
(phenylethynyl)phenyl]cyclopentadienone, was synthesized. The Diels-Alder  
homocondensation of the monomer resulted in a highly branched polyphenylene  
(Mw = 160000), readily soluble in organic solvents. The polymer obtained is  
thermally stable up to 600°C (in argon atmospheric) and has a glass transition  
of 280°C. The structure of the monomer and polymer was confirmed by <sup>1</sup>H NMR,  
<sup>13</sup>C NMR, IR Fourier, and Raman Fourier spectroscopy.

IT 198291-05-3P

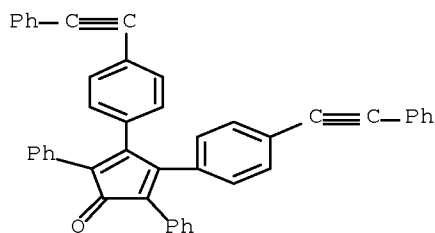
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(synthesis of 2,5-diphenyl-3,4-bis[p-  
(phenylethynyl)phenyl]cyclopentadienone and product of its  
Diels-Alder homocondensation)

RN 198291-05-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-  
phenylethynyl)phenyl]- (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

IT 198291-05-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(synthesis of 2,5-diphenyl-3,4-bis[p-



(phenylethynyl)phenyl]cyclopentadienone and product of its  
Diels-Alder homocondensation)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L26 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:183953 HCAPLUS Full-text

DOCUMENT NUMBER: 128:230849

ORIGINAL REFERENCE NO.: 128:45729a,45732a

TITLE: Polyphenylene oligomers, uncured polymers, and  
cured polymers, polyfunctional compounds, and  
integrated circuit articles using dielectrics  
therefrom

INVENTOR(S): Godschalx, James P.; Romer, Duane R.; So, Ying  
Hung; Lysenko, Zenon; Mills, Michael E.; Buske,  
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PATENT ASSIGNEE(S): Dow Chemical Co., USA

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CODEN: PIXXD2

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PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 9811149	A1	19980319	WO 1997-US15142	199708 28
W: IL, JP, KR, NO, SG RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5965679	A	19991012	US 1997-834677	199704 01
EP 889920	A1	19990113	EP 1997-939622	199708 28
EP 889920	B1	20020213		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
NO 9805617	A	19981201	NO 1998-5617	199812 01
HK 1019341	A1	20030110	HK 1999-102970	199907 12
PRIORITY APPLN. INFO.:			US 1996-711838	A 199609 10
			US 1997-834677	A 199704 01
			WO 1997-US15142	W 199708 28

AB An oligomer, uncured polymer or cured polymer comprising the reaction product of one or more polyfunctional compds. containing two or more cyclopentadienone groups and at least one polyfunctional compound containing two or more aromatic acetylene groups wherein at least some of the polyfunctional compds. contain three or more reactive groups. 3,3'-1,4-Phenylenebis[2,5-bis(4-fluorophenyl)-4- phenylcyclopentadienone] 316, 1,3-bis(phenylethynyl)benzene 72, and 1,3,5-tris(phenylethynyl)benzene 44 mg were heated under reflux in 1,3-diisopropylbenzene for 42 h, spin-coated on a wafer, and cured at 400° for 1 h.

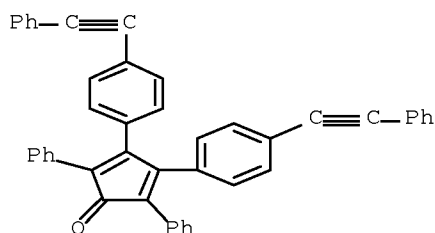
IT 198291-05-3P 204520-88-7P 204521-04-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(polyphenylene oligomers, uncured polymers, and cured polymers, polyfunctional compds., and integrated circuit articles using dielects. therefrom)

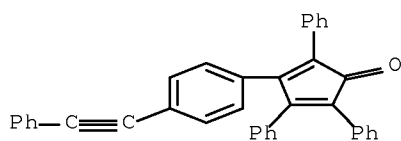
RN 198291-05-3 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



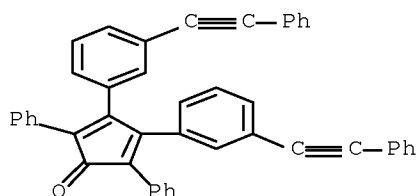
RN 204520-88-7 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,3,5-triphenyl-4-[4-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



RN 204521-04-0 HCAPLUS

CN 2,4-Cyclopentadien-1-one, 2,5-diphenyl-3,4-bis[3-(2-phenylethynyl)phenyl]- (CA INDEX NAME)



IC ICM C08G061-10  
CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 76  
IT 615-54-3P, 1,2,4-Tribromobenzene 1849-26-9P, 4-(Phenylethynyl)phenol 1849-27-0P 2001-29-8P, 4-Bromodeoxybenzoin 3432-73-3P 4254-18-6P, 4,4'-Dibromobenzoin 13092-45-0P 13141-36-1P 21368-80-9P 21454-19-3P 24253-43-8P 33527-94-5P, 4-Iodophenyl acetate 35578-47-3P, 4,4'-Dibromobenzil 37859-24-8P, 4-Bromophenylacetyl chloride 39229-12-4P, 4-Bromobenzil 51930-25-7P 65622-33-5P, 1,3-Bis(4-fluorophenyl)-2-propanone 70734-74-6P 91960-97-3P, 3,3'-Dibromobenzil 118688-56-5P 151041-82-6P 164403-02-5P 198291-05-3P 198291-09-7P 204520-88-7P 204520-96-7P 204520-98-9P 204521-00-6P 204521-04-0P 204521-06-2P 204521-07-3P 204521-22-2P 204521-23-3P 204521-24-4P 204521-25-5P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(polyphenylene oligomers, uncured polymers, and cured polymers, polyfunctional compds., and integrated circuit articles using dielects. therefrom)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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